



United States Department of Agriculture
Rural Development

Rural Business-Cooperative Service • Rural Housing Service • Rural Utilities Service
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SUBJECT: USDA Rural Development
Life Cycle Analysis of Water Towers

TO: Project Engineers or Architects

Any project funded with Rural Development; Rural Utilities Service funds are not allowed to sole source equipment. This has been interpreted to mean that different types of water towers should be bid as alternates. Single Pedestal tanks may be more expensive capital costs but less expensive to maintain. Attached is an example of the way of determining the difference in costs using life cycle analysis.

Repainting of Four-Leg Tank			
Description	Unit, SF	Unit Cost, \$/SF	Total Cost, \$
Interior Wet Area	3150	2.70	\$8,505
Exterior Dry Area	6500	4.75	\$30,875
Estimated Construction Cost for Repainting			\$39,380

Repainting of Single Pedestal Tank			
Description	Unit, SF	Unit Cost, \$/SF	Total Cost, \$
Interior Wet Area	2200	2.70	\$5,940
Interior Dry Area	2700	2.00	\$5,400
Exterior Dry Area	3950	4.50	\$17,775
Estimated Construction Cost for Repainting			\$29,115
Difference in Painting Costs per Event			\$10,265

The loan repayment period is 40 years. During the 40 year period is estimated that the tower will require painting 3 times (13-year paint life). Per Office of Management and Budget, federal projects are to use inflation adjusted discount factor of 4.1% for 10 to 40 years long. Following is the table showing the present value of the three paintings.

Present Value of Future Paintings	
13 years	\$6,090
26 years	\$3,610
40 years	\$2,060
Difference in Painting Costs	\$11,760

In this case, if the difference between a single pedestal and four-leg tank is less than \$11,760 and the project can remain within budget constraints a single pedestal should be chosen over the four-legged tank.

This Life Cycle Analysis should be used to compare concrete tanks to legged and pedestal. It should also be used to compare glass-lined to painted standpipes. If there are any questions please contact me at your convenience at (402) 437-5560 or E-mail me at marty.norton@ne.usda.gov.

MARTIN J. NORTON
Civil Engineer

Cc: Business and Community Program Director
Rural Development Specialists